SECTION 470—BITUMINOUS SEAL COAT

470.1 DESCRIPTION—This work is application of bituminous material, immediately followed by application of coarse aggregate.

470.2 MATERIAL—

(a) Bituminous Material. One of the following, as specified in Section 702.

Class of Material	Type of Material	Application Temperature °C (F) Minimum	Maximum
RS-2 (E-2)	Emulsified Asphalt	60 (140)	80 (175)
CRS-2 (E-3)	Cationic Emulsified Asphalt	60 (140)	80 (175)
RS-2PM (E-2M)	Polymer-Modified Emulsified Asphalt	60 (140)	80 (175)
CRS-2PM (E-3M)	Polymer-Modified Cationic Emulsified Asphalt	60 (140)	80 (175)
CRS-1PM	Low Temperature Polymer-Modified Cationic Emulsified Asphalt	38 (100)	60 (140)
PG 46-40	Asphalt Cement	120 (240)	150 (300)

Because of restrictive weather limitations governing the use of CRS-1PM emulsified asphalt, and the chemistry of the material, use CRS-1PM emulsions only with the written permission of the District Executive. Provide CRS-1PM produced by a source listed in Bulletin 15. The ambient temperature range for using CRS-1PM is 2 °C to 13 °C (35F to 55F). CRS-1PM is for only Low Temperature seal coat operations. Do not use CRS-1PM for summer seal-coat projects. Do not use CRS-1PM Low Temperature emulsions in rainy weather or on wet or damp surfaces.

Use PG 46-40 only on shoulders.

(b) Coarse Aggregate. Type A, No. 8—Section 703.2 and with the SRL designated in the Contract Item. Supply aggregate from a source listed in Bulletin 14. The Contractor may use an aggregate or blends of aggregates with an SRL equal to or better than that specified. Blends are 50% by mass (weight) of the two aggregates. Mix the aggregates using an approved method.

470.3 CONSTRUCTION—At least 2 weeks before the scheduled start work, submit a seal coat design for the Representative's review. Design the seal coat according to the method in Appendix E of Bulletin 27. If the source or gradation of aggregate changes or if type of bitumen changes, submit a new seal coat design.

(a) Preparing Existing Surface. Remove and dispose of all unsuitable material. Where indicated, seal cracks as specified in Section 469.

(b) Application of Bituminous Material. Apply bituminous material when the entire surface is in condition to allow satisfactory material penetration and adhesion and when the air, surface, and aggregate temperatures are above 16 °C (60F) or, if using CRS-1PM, from 2 °C to 13 °C (35F to 55F). Do not apply emulsified asphalt if, in the Representative's opinion, rain is imminent or if the Representative expects freezing temperatures within 24 hours after application.

Do not apply RS-2(E-2), CRS-2(E-3), RS-2PM(E-2M), CRS-2PM(E-3M), or PG 46-40 from September 15 to May 1 in Districts 1-0, 2-0, 3-0, 4-0, 9-0, 10-0, 11-0, 12-0, and 5-0 (Monroe, Carbon, and Schuylkill Counties only); and from October 1 to May 1 in Districts 6-0, 8-0, and 5-0 (Berks, Lehigh, and Northampton Counties only).

Use a distributor as specified in Section 460.3(b). Use a rate of application within ±10% of the design rate. Determine the distributor application rate in the field according to PTM No. 747.

For inaccessible areas, uniformly spread the bituminous material over the surface using portable pressure units. The quantity of material placed at one time shall be consistent with the facilities for handling, spreading, and rolling coarse aggregate, as well as the temperature of the surface and bituminous material.

Uniformly spread the bituminous material at the junction of separate applications.

(c) Spreading and Rolling Coarse Aggregate. Use dry aggregates, except the Contractor may use damp aggregates with emulsified asphalt. Before spreading aggregate, calibrate the spreader using a method acceptable to the Inspector-in-Charge.

Immediately after applying the bituminous material, uniformly spread a single layer of course aggregate at the design rate using a mechanical spreader capable of spreading 8.1 kg/m^2 to 13.6 kg/m^2 (15 pounds per square yard to 25 pounds per square yard).

Roll the aggregate with pneumatic-tire rollers, as specified in Section 108.05(c)3.f. Provide a sufficient number of rollers to roll the width of stone spread with one pass. Use a contact pressure from 280 kPa to 340 kPa (40 pounds per square inch to 50 pounds per square inch).

(d) Protection of Surface. Do not allow vehicular traffic or loads on the newly completed surface until the material obtains adequate stability and adhesion and the material is sufficiently cured to prevent distortion, flushing of bituminous material to surface, and loss of aggregate.

Provide sufficient flaggers and pilot vehicles to move traffic through the work zone or over the completed work at speeds that prevent aggregate distortion or pick-up. If required, sweep the surface with a power broom to remove loose aggregate before and after opening the road opened to traffic. Provide a pilot car for sweeping operations after opening the road to traffic.

470.4 MEASUREMENT AND PAYMENT—

(a) Area Basis. Square Meter (Square Yard)

(b) Material Used Basis.

1. **Coarse Aggregate.** Square Meter (Square Yard)

2. **Bituminous Material.** Liter (Gallon)

(c) Crack Filling and Sealing. Section 469.4